CERTIFICATION

I, Takao Kohno; 4-3, Tsuriganecho 2-chome, Chuo-ku, Osaka 540, Japan, hereby certify that I am the translator of the documents in respect of an application for a patent filed in Japan on the 12th day of July, 1996
(Japanese Patent Application No. 8-183569)

and certify that the following is a true and correct translation to the best of my knowledge and belief.

KOHNO PATENT OFFICE

KOHNO Takao

Dated this 17th day of September, 2003

[Name of the Document] Specification

[Title of the Invention] On-Screen Displaying Method and Television Receiver with Built-In Internet Receiver

[Claims for Patent]

[Claim 1] An on-screen displaying method of receiving The Internet information, displaying it on the screen, and also displaying a tool bar composed of a plurality of buttons each representing a control function on the screen, comprising steps of:

selecting an arbitrary button in said tool bar;

displaying said selected button in a magnified state; and

changing the displaying state of said button displayed in the magnified state when executing the function of said selected button.

[Claim 2] An on-screen displaying method as set forth in claim 1, wherein the selected button is magnified in the direction toward the lower part of the screen at said step of displaying said selected button in a magnified state.

[Claim 3] An on-screen displaying method as set forth in claim 2, wherein characters for expressing the function of the button are also displayed at said step of displaying said selected button in a magnified state.

[Claim 4] An on-screen displaying method as set forth in claim 3, wherein said selected button is displayed in a depressed state at the step of changing the displaying state of said button displayed in a magnified state when executing the function of said selected button.

[Claim 5] A television receiver with a built-in Internet receiver comprising a tuner for receiving a television signal, a channel selection

unit for selecting a channel of said tuner, a displaying unit for displaying a television signal of the selected channel, a receiving unit for receiving Internet information obtained via a telephone line, and means for converting information from the Internet information receiving unit into a , wherein displaying means is included for displaying received Internet information on the screen and also displaying a tool bar composed of a plurality of buttons each representing a control function, and when an arbitrary button in the tool bar is selected by the displaying means, the selected button is displayed in a magnified state, and when executing the function of the selected button, the displaying state of the button displayed in the magnified state is changed.

[Claim 6] A television receiver with a built-in Internet receiver according to claim 5, wherein the button is magnified toward the lower part of the screen when the selected button is displayed in a magnified state.

[Claim 7] A television receiver with a built-in Internet receiver according to claim 6, wherein characters for expressing the function of the button are also displayed when the selected button is displayed in the magnified state.

[Claim 8] A television receiver with a built-in Internet receiver according to claim 7, wherein the selected button is displayed in a depressed state when executing the function of the selected button.

[Detailed Description of the Invention]

[0001]

[Field of Industrial Application]

The present invention relates to an on-screen displaying method used for a browser which receives information through the Internet, takes in the

information and displays the information on the screen, so as to make the on-screen display easy to see and improving the operability of the browser, and also relates to an art of receiving the Internet by a television receiver with a built-in Internet receiver.

[0002]

[Prior Art]

Recently, owing to the popularity of personal computers, information is transmitted and received widely by using the Internet. In collecting information through the Internet according to prior arts, it has become possible to transmit information ranging from characters which are sent by E-mail to image and sound information.

[0003]

Therefore, recently, more an more users are using the Internet as the site of information presentation. It is the WWW (World Wide Web) that is noticed as the server for providing such information.

[0004]

The reason why the WWW server is drawing attention is mainly due to the wide spread of client software for retrieving information by using a graphical menu. By the development of such software, it becomes easier to search for information on the network, and the traffic volume to the WWW server increased rapidly, and the users have come to notice the server as the publicity media, and many users have come to use it.

[0005]

To view information of the WWW server, as mentioned above, the client software is needed. For example, the client software is disclosed in pages 164 to 167 of "Internet Handbook for Corporate Users", an extra output of Nikkei Communications published by Nikkei BP (November 30, 1994).

[0006]

To view information of the WWW server through the Internet, it is required to have a personal computer and use a client software. Actually, however, there are many people who are interested in such information, but not daring to buy a personal computer. They only want to view information through the Internet easily.

[0007]

In view of the above, an idea of employing an ordinary television receiver used in the general household as a displaying apparatus for displaying the Internet information is proposed. Accordingly, without having to purchase a personal computer, only a device for receiving the Internet information is built in or attached to the television receiver, and the television receiver fulfills its original function while the user is not viewing the Internet information, which is very convenient for the user.

[0008]

When viewing the information of WWW server of the Internet by the television receiver in this way, it is seen by the client software as mentioned above. However, the on-screen display of the ordinary browser is prepared for the personal computer, and the display is small. In particular, the tool bar and buttons are shown in a very small size. This is because the personal computer is mainly used by a person, and operated by the user near the screen, and even a small display can be recognized sufficiently.

[0009]

By contrast, since the television receiver is usually seen by the user at a certain distance, if this client software is displayed in the

television receiver, the tool bar is displayed small and is hard to see. Hence, operation by the tool bar is difficult.

[0010]

[Problems to be Solved by the Invention]

The present invention is devised in view of the above problems, and an object of the invention is to present an on-screen displaying method and a television receiver with a built-in Internet receiver which is easy to operate and capable of providing on-screen display easy to see in the browser screen for showing Internet information in a television receiver.

[0011]

[Means for Solving the Problems]

The present invention provides an on-screen displaying method of receiving Internet information, displaying it on the screen, and also displaying a tool bar composed of a plurality of buttons each representing a control function on the screen, comprising steps of:

selecting an arbitrary button in said tool bar;

magnifying and displaying said selected button; and

changing the displaying state of said button displayed in the magnified state when executing the function of said selected button.

[0012]

The present invention provides an on-screen displaying method characterized by that the button is magnified in the direction toward the lower part the screen at the step of displaying the selected button in a magnified state.

[0013]

The present invention provides an on-screen displaying method

characterized by that characters for expressing the function of the button are also displayed at the step of displaying said selected button in a magnified state.

[0014]

The present invention provides an on-screen displaying method characterized by that the selected button is displayed in a depressed state at the step of changing the displaying state of said magnified button when executing the function of said selected button.

[0015]

The present invention provides a television receiver with a built-in Internet receiver comprising a tuner for receiving a television signal, a channel selection unit for selecting a channel of said tuner, a displaying unit for displaying a television signal of the selected channel, an Internet information receiving unit for receiving Internet information obtained via a telephone line, and means for converting information from the Internet information receiving unit into a , wherein displaying means is included for displaying the received Internet information on the screen and also displaying a tool bar composed of a plurality of buttons each representing a control function, and when an arbitrary button in the tool bar is selected by the displaying means, the selected button is displayed in the magnified state, and when executing the function of the selected button, the displaying state of the button displayed in the magnified state is changed.

[0016]

The present invention provides a television receiver with a built-in Internet receiver characterized by that the button is magnified toward the lower part of the screen when the selected button is displayed in a

magnified state.

[0017]

The present invention provides a television receiver with a built-in Internet receiver wherein characters for expressing the function of the button are also displayed when the selected button is displayed in a magnified state.

[0018]

The present invention provides a television receiver with a built-in Internet receiver characterized by that the selected button is displayed in a depressed state when executing the function of the selected button.

[0019]

[Embodiments of the Invention]

The present invention will be described below with reference to the drawings. FIG. 1 is a block diagram showing an embodiment of the present invention. The reference numeral 1 denotes a tuner for receiving a television signal, 2 denotes an intermediate frequency (IF) circuit, 3 denotes a synchronizing separation and deflection processing circuit, 4 denotes a video chroma processing circuit, 5 denotes an RGB matrix and RGB switch (SW), 6 denotes a channel selection CPU, 7 denotes an on-screen display control circuit (referred to as an OSD circuit hereinafter), 8 denotes an Internet processing unit, and 9 denotes a cathode-ray tube (CRT).

[0020]

Next, the operation will be described below. For receiving a television signal, first, when the user selects a desired channel, the channel selection CPU 6 tunes the tuner 1 to the selected channel, and an IF signal is output from the IF circuit 2. Then the video chroma

processing circuit 4 outputs a luminance signal and a color difference signal. The RGB matrix 5 outputs an RGB signal to the CRT 9. The synchronizing separation and deflection processing circuit 3 extracts and deflects a synchronizing signal. The OSD circuit 7 generates a character signal for displaying the channel or the like and supplies it to the CRT 9.

[0021]

The Internet processing unit 8 receives Internet information obtained via a telephone line of an address selected by the user. The information is process in the modem processing unit, and converted into an RGB signal of the television signal, supplied to the RGB switch 5, and displayed by the CRT 6 as an Internet displaying screen. With the above procedure, the user can switch over between the television screen and the Internet screen and enjoy each of them.

[0022]

Next, the display of the Internet screen and the operation thereof will be described. FIG. 2 shows the aforementioned display (referred to as a browser screen hereinafter). In FIG. 2, the reference numeral 10 denotes a displaying area for indicating whether or not the telephone lien is connected, 11 denotes a comment displaying area for displaying a comment on the connection state of the telephone line and a status bar, and 12 denotes an address displaying area. The numerals 13 through 24 denote a tool bar, in which 13 denotes a button for returning to the previous screen, 14 denotes a button for proceeding to the next screen, 15 denotes a button for rereading information, 16 denotes a button for rereading an image, 17 denotes a button for inputting a URL (Uniform Resource Locator), 18 denotes a button for registering the URL, 19 denotes a button for stopping, 20 denotes a button for ending, 21 denotes a button

for scrolling down on the screen, 22 denotes a button for scrolling up on the screen, 23 denotes a button for scrolling to the left, 24 denotes a button for scrolling to the right, 25 denotes a cursor and 26 denotes an information displaying area.

[0023]

When an address is specified in the above state of the screen, Internet information is transmitted via the telephone line and displayed in the information displaying area 26.

[0024]

Now the operation of the tool bar, which characterizes the present invention, will be described with reference to the example of the screen display in FIG. 3 and the flowchart in FIG. 6. First, the operation will be described with reference to the flowchart in FIG. 6. When the Internet receiving mode is set, the browser screen is displayed (S1). At this point, the screen before a button in the tool bar is selected is in the state shown in FIG. 3F. When the cursor is moved by operation of an operating unit such as a mouse (an air mouse or a remote controller, either not shown) to a button (S2), the button is displayed in a magnified state and the function of the button is also displayed (S3). When the cursor is moved to the button 13 or the button 16, for example, the button is magnified toward the lower part of the screen as shown in FIG. 3, and further, the function of the button is displayed in the characters.

[0025]

When the cursor is moved away from the button, the button returns to the original state (FIG. 3G). When the cursor is not moved, and the function of the button is to be executed, the button is clicked (selected) by the operating unit such as a mouse (an air mouse or a remote

controller, either not shown) (S5). Then the button is displayed in a depressed state as shown in FIG. 3H (or the color of the button may be changed) (S6), and the function is executed (S7). After clicking for selection, the depressed state of the button returns to the original state.
[0026]

As described above, each function can be executed by operating a button in the tool bar. When the function of the button can not be executed, the button is displayed in a lower tone (FIG. 3I).
[0027]

Next, a description will be given to the operation of the displaying area 10 for indicating whether or not the telephone line is connected, and the operation of the comment display area 11 for displaying a comment on the state of the telephone line, with reference to the examples of display in FIGS. 4 and 5, and the flowcharts in FIGS. 7 and 8.
[0028]

First, an operation for displaying the connection time of the telephone line will be described with reference to the flowchart in FIG. 7. The procedure starts when the browser screen is as shown in FIG. 2 (S8), that is, the state in which the comment display area 11 indicates that the telephone line is not connected as shown in FIG. 5E (a picture of a telephone in the hooked state is displayed with no comment).
[0029]

When the telephone line is connected (S9), the connection time is counted (S10), and the time thus counted is displayed (S11). On the screen, the line connection time (30 seconds) is displayed in the comment displaying area as shown in FIG. 4A, and a picture of a telephone in the unhooked state is displayed in the displaying area 10.

[0030]

When the telephone line is disconnected (S12), the display is halted (S13) and changed into the state shown in FIG. 5E.

[0031]

Next, the displaying operation after the line is disconnected will be described with reference to the flowchart in FIG. 8. First, when the Intenet receiving mode is set, the browser screen is displayed (S14). Then, if the telephone line is still disconnected, the connection is changed into the state shown in FIG. 5E as described before (S19), and if the telephone line is connected, the procedure goes on to the next step (S15).

[0032]

Then it is judged whether or not date is in the process of reading (S16), and if the data is not in the process of reading, the display is made to indicate that the telephone line is connected as shown in FIG. 5D (S20). If the data is in the process of reading, it is judged whether or not the data reading is completed (S17), and if the data is in the process of reading, a comment is displayed to indicate that the state of connection response wait is set as shown in FIG. 4C (S21). If the data reading is completed, a comment is displayed to indicate the completion of the reading operation (S18).

[0033]

Each state is displayed in the display area 10 and the comment display area 11 as described above.

[0034]

The above operations are software-controlled, and they are controlled by a CPU built in the Internet processing unit 8 (not shown).

[0035]

Due to the above configuration, the present invention has many advantages as described below. The function of each button in the tool bar on the browser screen is displayed so that its function can be easily recognized when the button is operated for receiving and displaying Internet information. Further, the screen is easy to see even when the operation is carried out from a distance, thereby facilitating the operation, and the state of line connection can be seen with a single glance.

[Brief Description of the Drawings]

[FIG. 1]

A block diagram showing an embodiment of the present invention.

[FIG. 2]

A diagram showing a screen on which a tool bar is displayed according to the invention.

[FIG. 3]

A diagram showing a screen on which a tool bar is displayed according to the invention.

[FIG. 4]

A diagram showing an example of display in a display area according to the invention.

[FIG. 5]

A diagram showing an example of display in a display area according to the invention.

[FIG. 6]

A diagram showing a flowchart of an operation for displaying a button according to the invention.

[FIG. 7]

A diagram showing a flowchart of an operation for displaying the connection time of a telephone line according to the invention.

[FIG. 8]

A diagram showing a flowchart of an operation for displaying the state of line connection according to the invention.

[Description of Reference Numerals]

1 Tuner

2 IF Circuit

3 Synchronizing Separation and Deflection Processing Circuit

4 Video Chroma Processing Circuit

5 RGB Matrix and RGB Switch Circuit

6 Channel Selection CPU

7 On-Screen Display Control Circuit

8 Internet Processing Unit

9 CRT

[Name of the Document] Abstract of Disclosure

[Abstract]

[Purpose] The purpose of the invention is to provide an on-screen displaying method and a television receiver with a built-in Internet receiver wherein the operation is easy and the display is easy to see on the browser screen for viewing Internet information using a television receiver.

[Means for Fulfilling the Purpose] For receiving Internet information, a browser screen is displayed, and in the upper part of the screen, a tool bar is displayed (F). When a user selects a desired function by moving the cursor by operating an operating unit such as a mouse (for example, the button 13 for returning to the previous screen is selected), the button is displayed in the state magnified toward the lower part of the screen, and simultaneously, characters for indicating the function of the button is displayed (G). When the button is clicked by the operating unit such as a mouse, the display of the button enters a depressed state.

[Drawing to be Selected] FIG. 3

FIG. 1

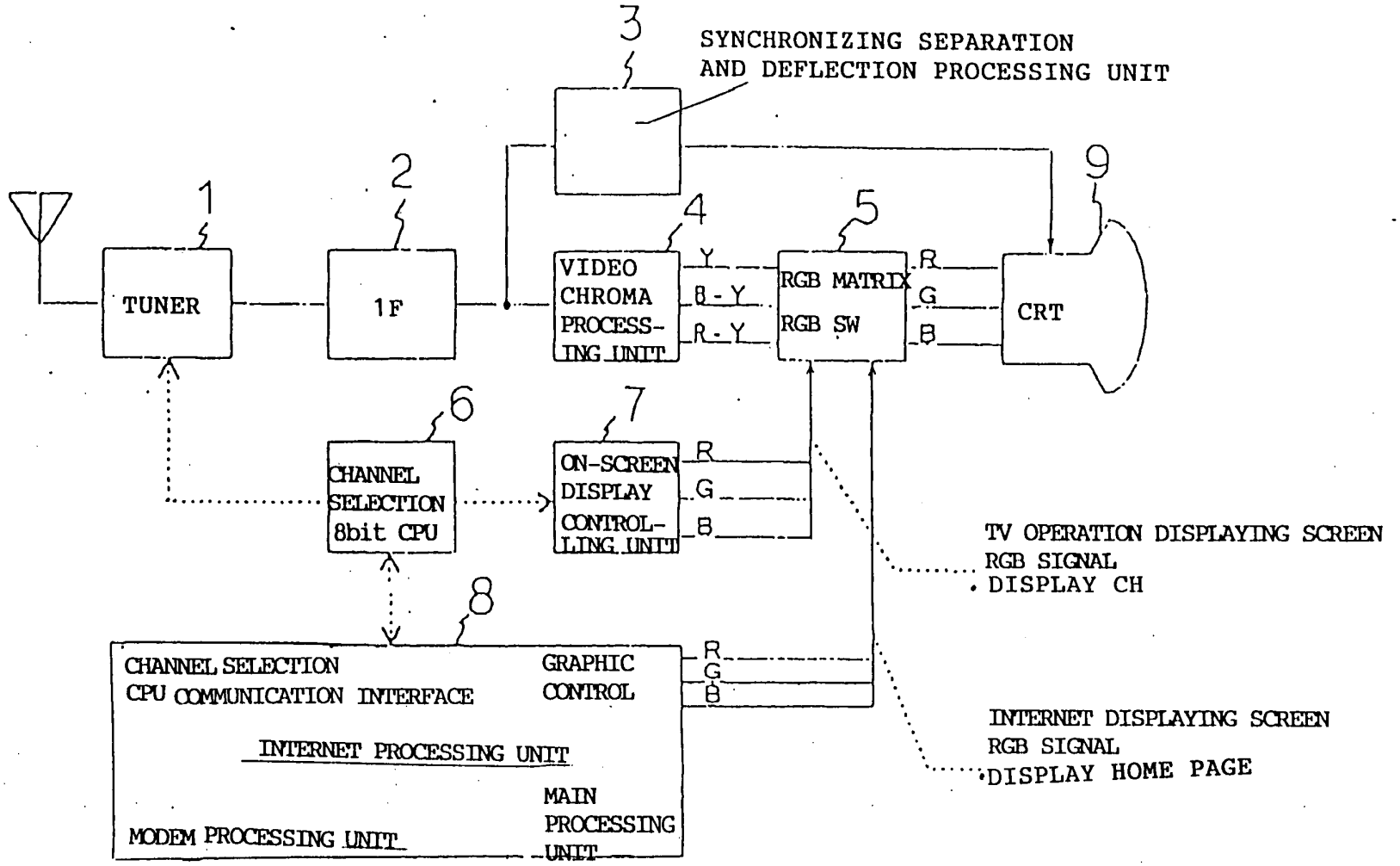


FIG. 2

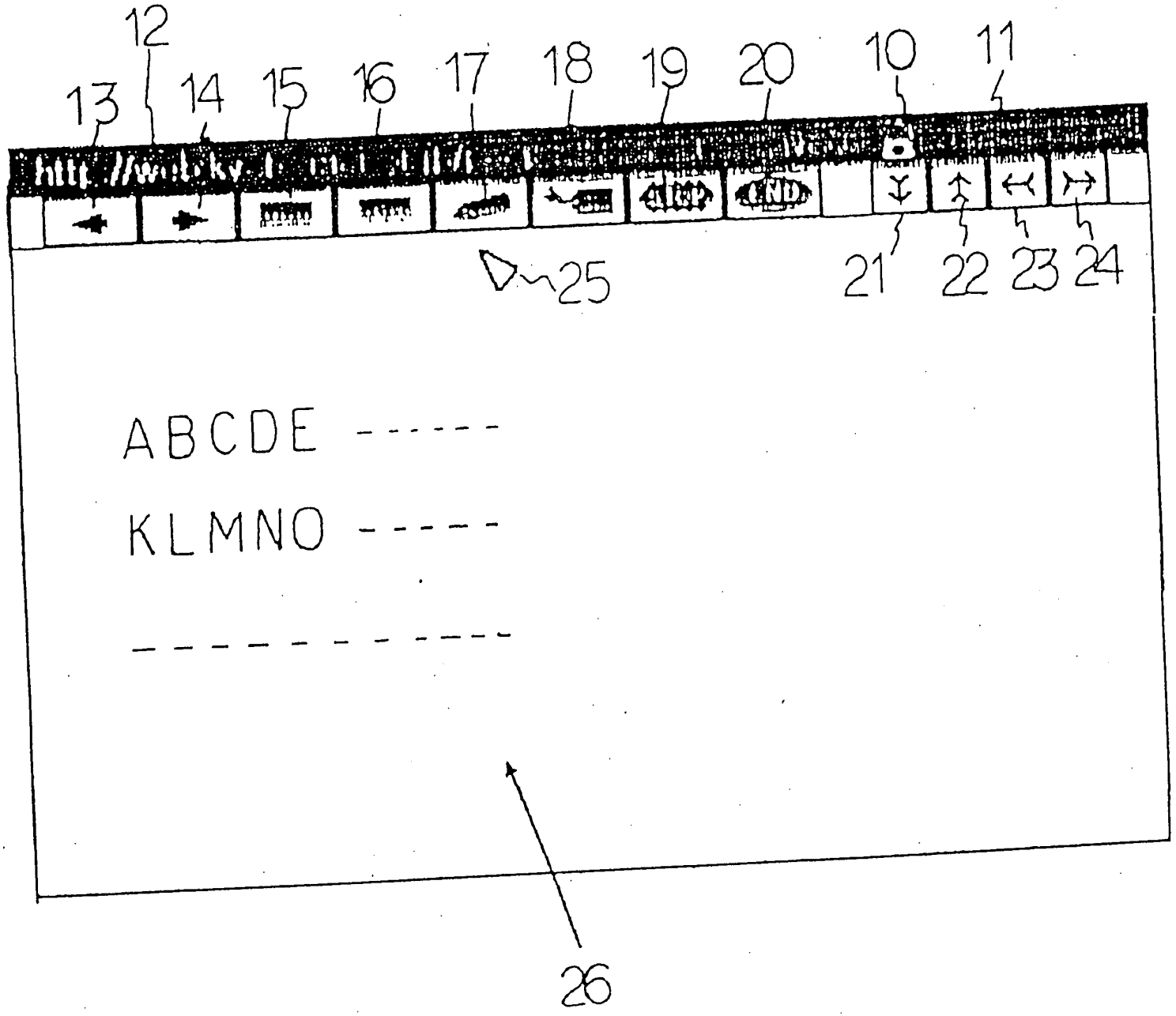


FIG. 3

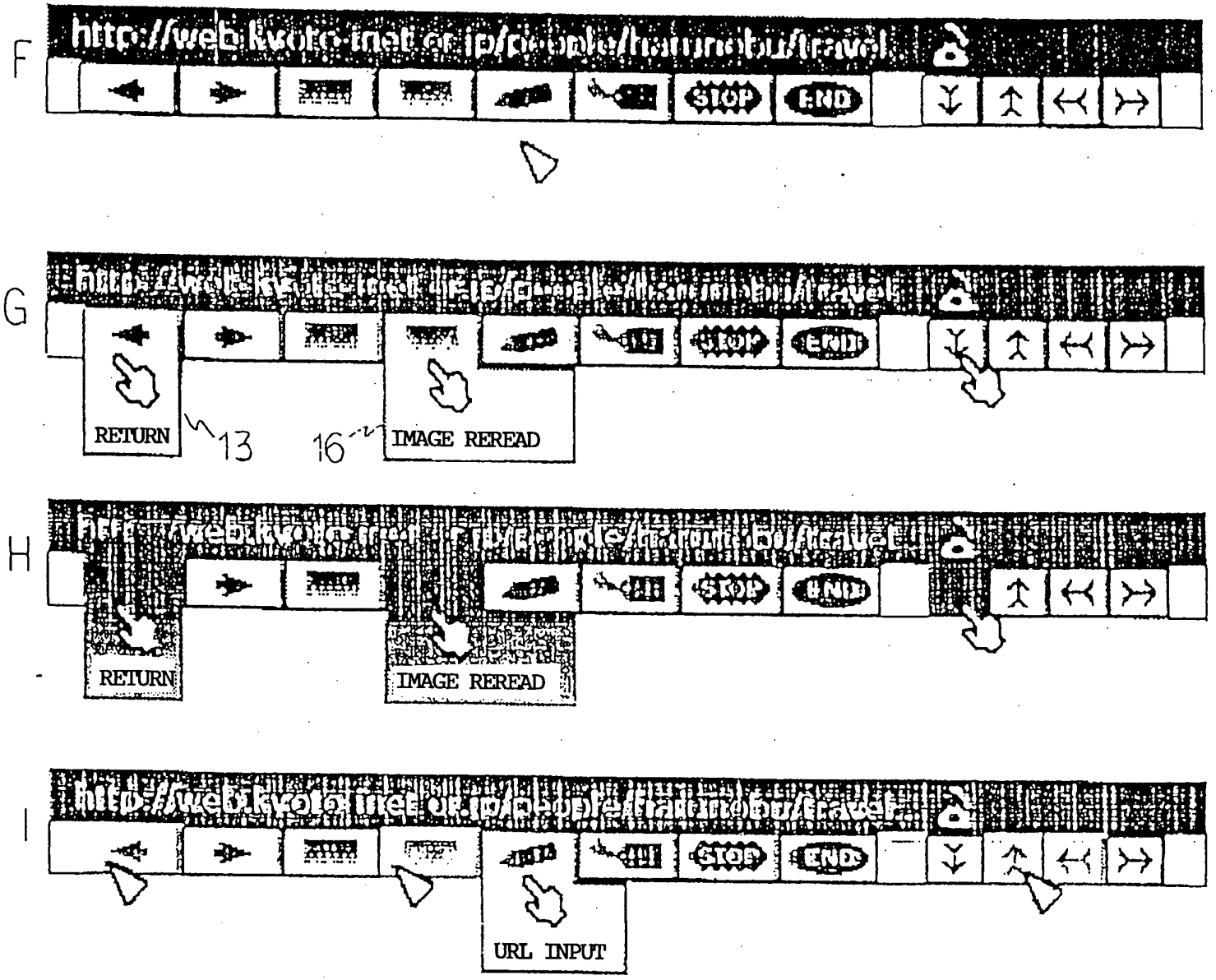

F
STOP
END
G
RETURN
13
16
IMAGE REREAD
H
RETURN
IMAGE REREAD
I
URL INPUT

FIG. 4

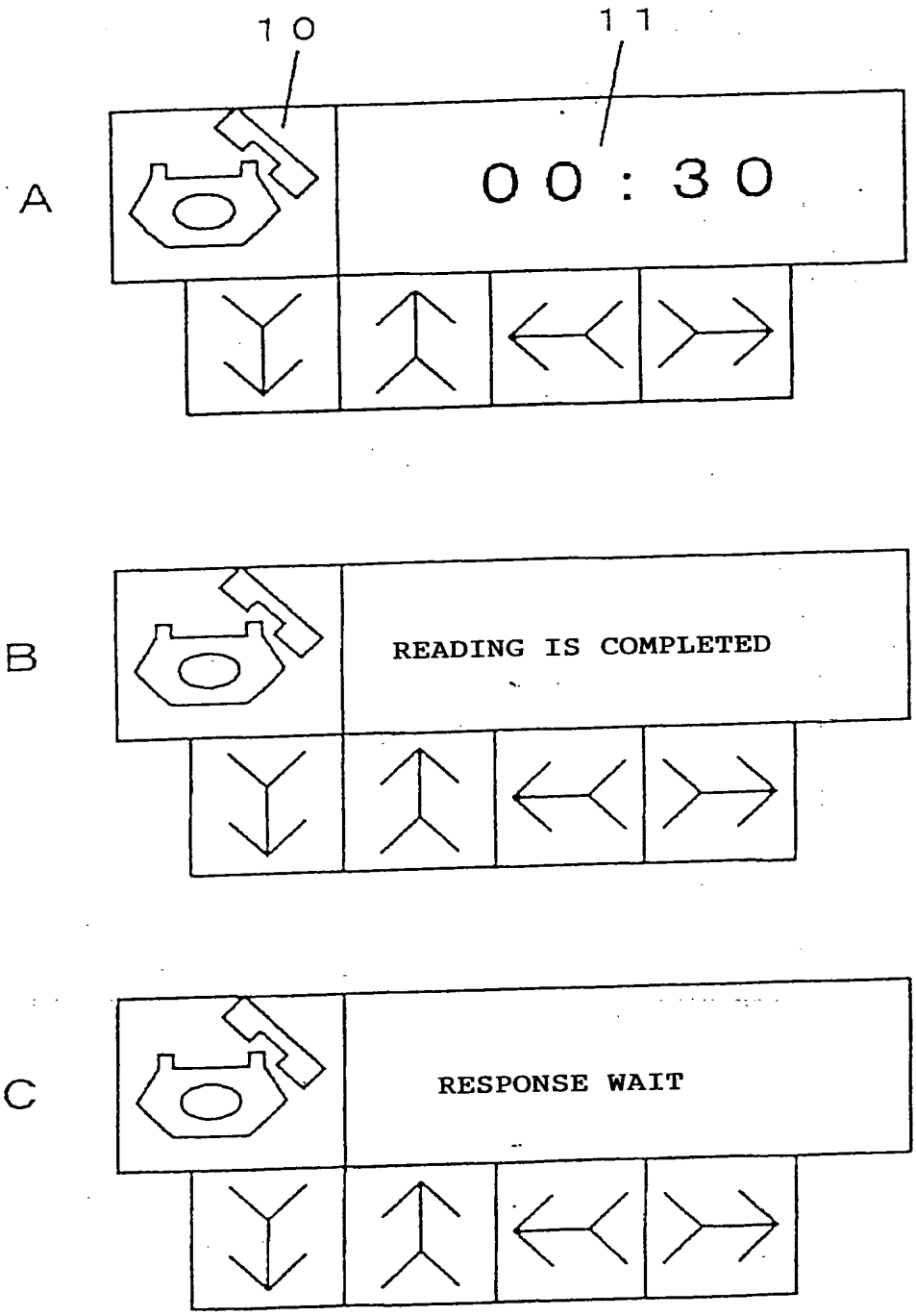
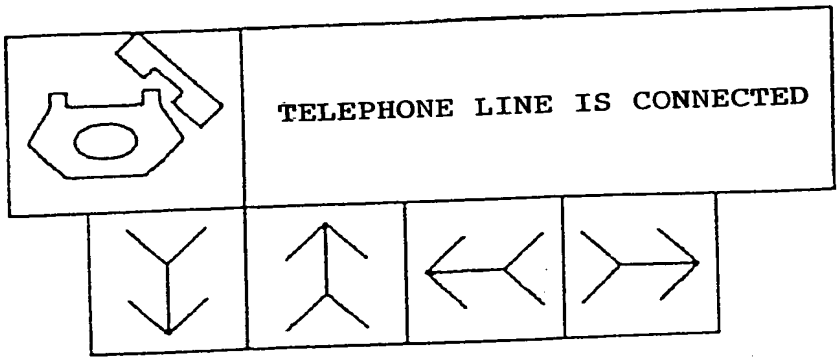


FIG. 5

D



E

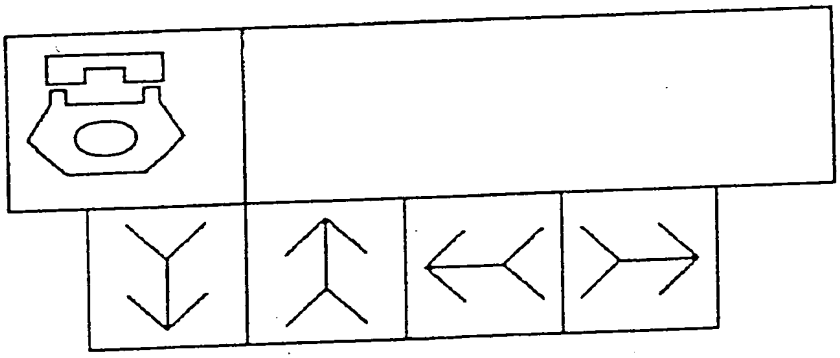


FIG. 6

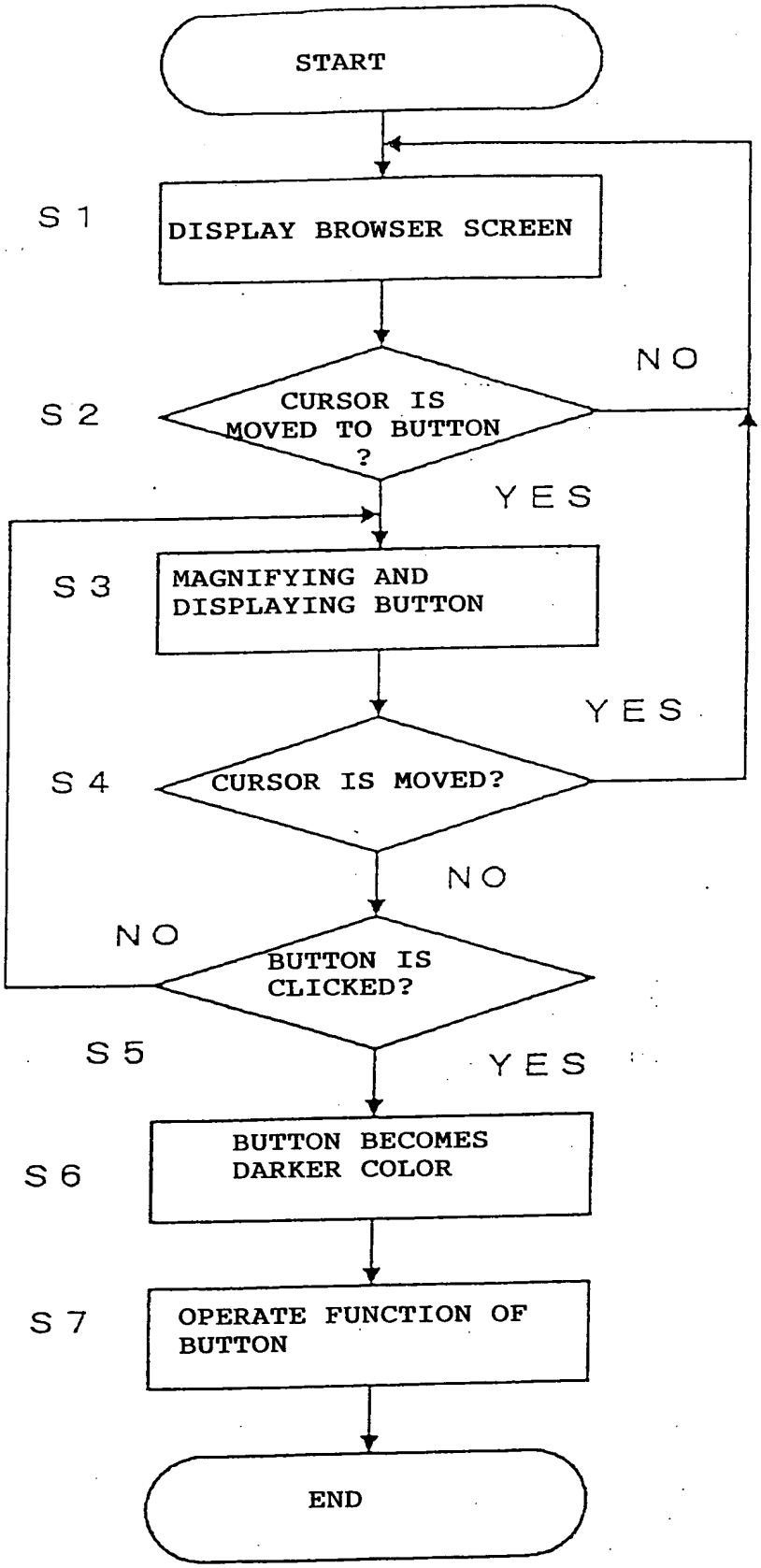

START
S 1
DISPLAY BROWSER SCREEN
S 2
CURSOR IS MOVED TO BUTTON ?
NO
YES
S 3
MAGNIFYING AND DISPLAYING BUTTON
YES
S 4
CURSOR IS MOVED?
NO
NO
BUTTON IS CLICKED?
S 5
YES
S 6
BUTTON BECOMES DARKER COLOR
S 7
OPERATE FUNCTION OF BUTTON
END

FIG. 7

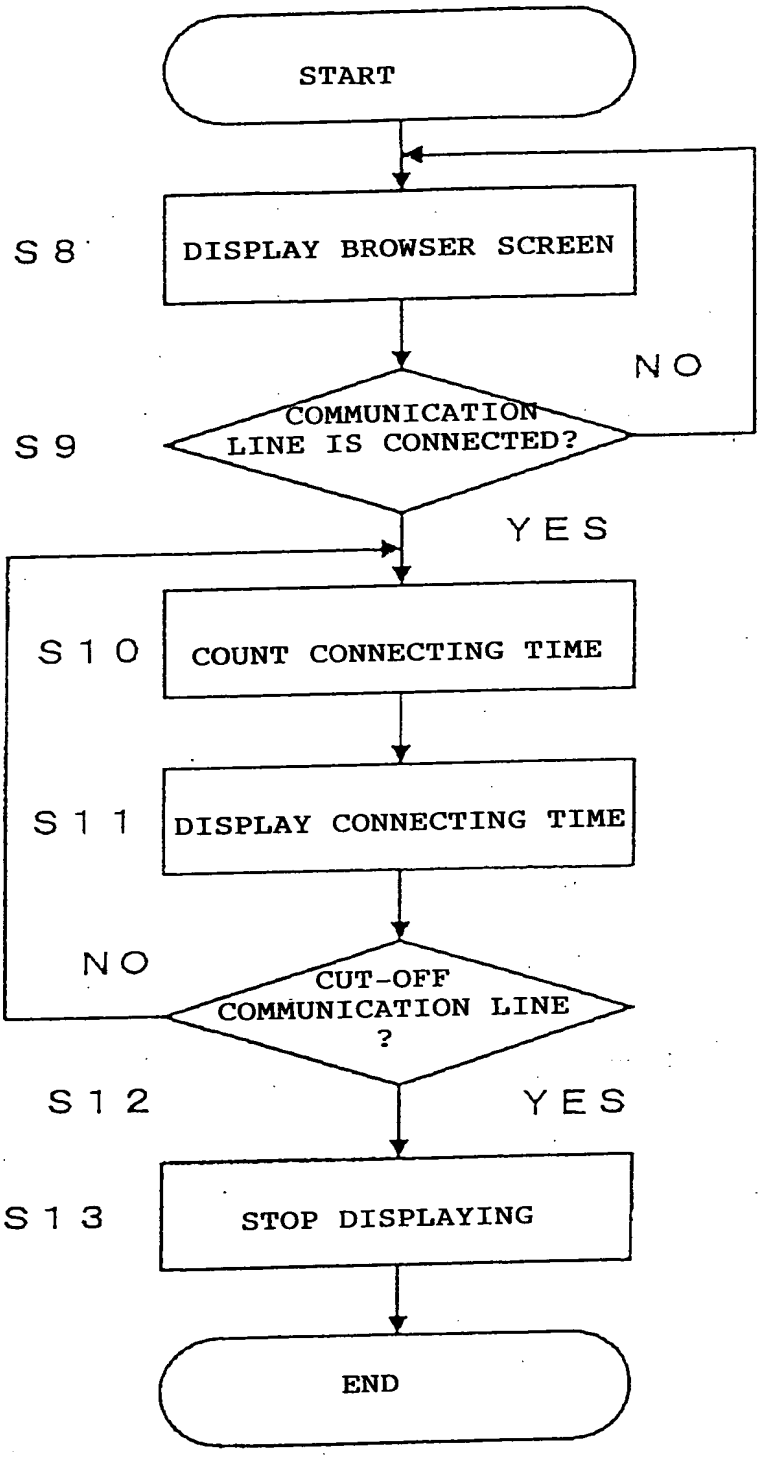
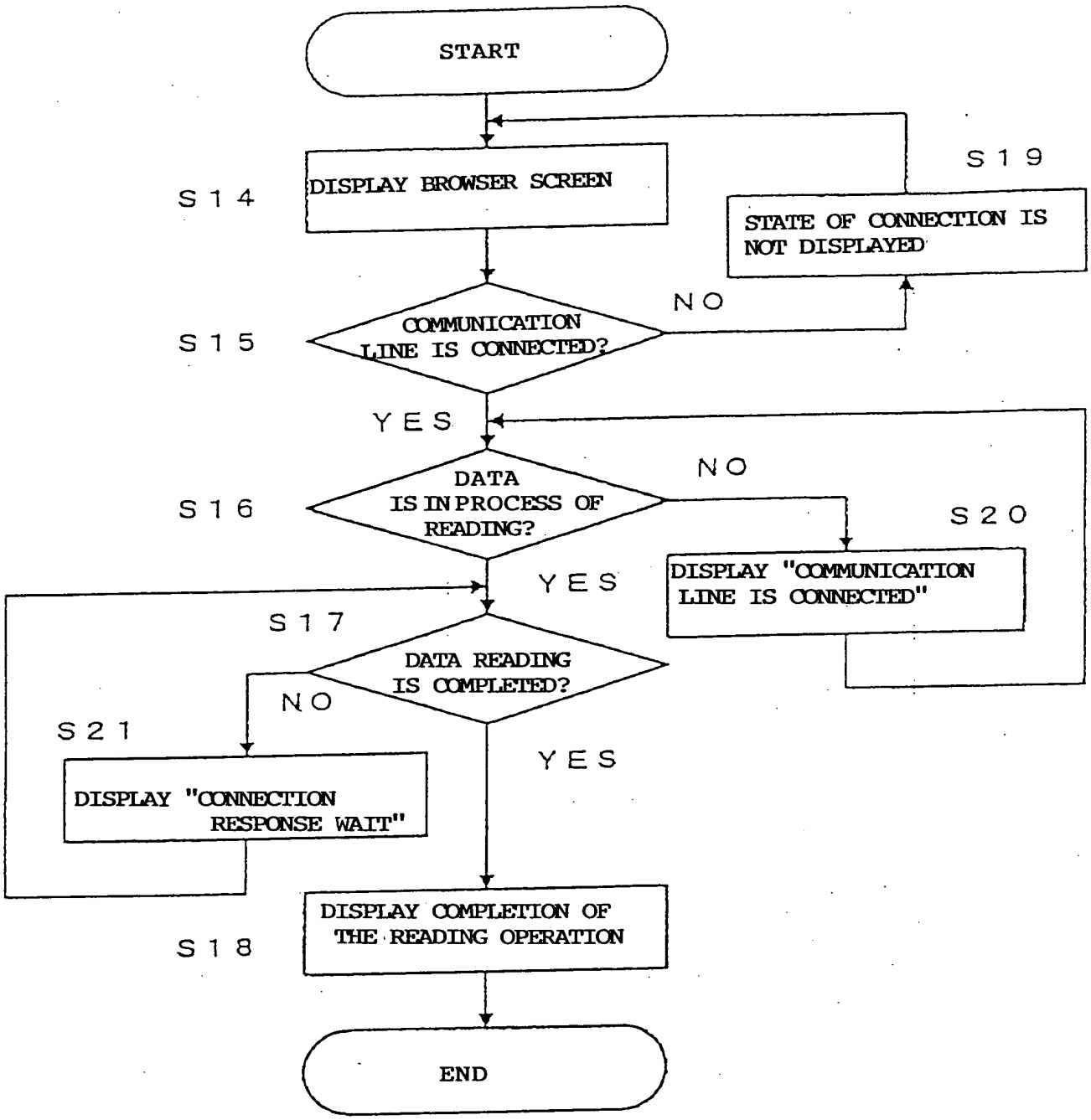

START
S8
DISPLAY BROWSER SCREEN
NO
S9
COMMUNICATION LINE IS CONNECTED?
YES
S10
COUNT CONNECTING TIME
S11
DISPLAY CONNECTING TIME
NO
CUT-OFF COMMUNICATION LINE ?
S12
YES
S13
STOP DISPLAYING
END

FIG. 8


START
S14
DISPLAY BROWSER SCREEN
S15
COMMUNICATION LINE IS CONNECTED?
NO
S19
STATE OF CONNECTION IS NOT DISPLAYED
YES
S16
DATA IS IN PROCESS OF READING?
NO
S20
DISPLAY "COMMUNICATION LINE IS CONNECTED"
YES
S17
DATA READING IS COMPLETED?
NO
S21
DISPLAY "CONNECTION RESPONSE WAIT"
YES
S18
DISPLAY COMPLETION OF THE READING OPERATION
END